

WHAT IS CLAIMED IS:

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1. A method of transferring message-oriented data between a main unit and a plurality of slave units, comprising the steps of:

10 inserting first message-oriented data having a fixed data length to an overhead of a first main signal at said main unit;

transferring the first main signal from said main unit to said plurality of slave units;

15 separating said first message-oriented data inserted to the overhead of the first main signal at said plurality of slave units;

inserting second message-oriented data having a fixed data length to the overhead of a second main signal at said plurality of slave units;

20 transferring the second main signal from said plurality of slave units to said main unit; and

separating said second message-oriented data inserted to the overhead of the second main signal at said main unit.

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2. The method as claimed in claim 1,
30 wherein said second message-oriented data is one of a first packet having a first data length and a second packet having a second data length, which is a multiple of said first data length.

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3. The method as claimed in claim 1,
further comprising the steps of:

providing head data having a fixed value
in said first and second message-oriented data
5 inserted to the overhead of said first and second
main signals, respectively; and

detecting said head data in said first and
second message-oriented data separated respectively
from said first and second main signals, thereby
10 recognizing beginnings of said first and second
message-oriented data.

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4. A main unit transferring message-
oriented data to a plurality of slave units,
comprising:

a first memory storing the message-
20 oriented data that has a fixed data length, and
includes interruption information, at an address
corresponding to each of the plurality of slave
units;

a second memory storing the message-
25 oriented data read from said first memory at the
address corresponding to said each of the plurality
of slave units, from which said message-oriented
data is read out at timing corresponding to an
overhead of a main signal; and

30 a multiplexer inserting said message-
oriented data read out from said second memory to
the overhead of the main signal, and transferring
said main signal to said plurality of slave units.

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5. A slave unit receiving message-oriented data transferred from a main unit to a plurality of slave units, comprising:

- a de-multiplexer separating the message-oriented data inserted to an overhead of a main signal received from said main unit, said message-oriented data corresponding to said slave unit;
- a memory storing said message-oriented data separated from the main signal; and
- an interruption detection unit detecting whether an interruption exists in said message-oriented data, based on interruption information included in said message-oriented data.

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6. A slave unit transferring message-oriented data from a plurality of slave units to a main unit, comprising:

- a first memory storing the message-oriented data that has a fixed data length, and includes interruption information;
- a second memory storing the message-oriented data read from said first memory, from which said message-oriented data is read out at timing corresponding to said slave unit in an overhead of a main signal; and
- a multiplexer inserting said message-oriented data read out from said second memory to the overhead of the main signal, and transferring said main signal to said main unit.

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7. The slave unit as claimed in claim 6,

wherein said slave unit selects one of a first packet having a fixed first data length and a second packet having a second data length, which is a multiple of said first data length, for transferring
5 said message-oriented data by use of a selected packet, and for determining a value of said interruption information in accordance with the selected packet.

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8. A main unit receiving message-oriented data from a plurality of slave units,
15 comprising:
a de-multiplexer separating the message-oriented data inserted to an overhead of a main signal that is received from each of said plurality of slave units;
20 a memory storing said message-oriented data separated from the main signal; and
an interruption detection unit detecting whether an interruption exists in said message-oriented data, based on interruption information
25 included in said message-oriented data.

30 9. The main unit as claimed in claim 8, wherein said interruption detection unit detects whether said message-oriented data is a first packet having a first fixed data length or a second packet having a second data length, which is a multiple of
35 said first data length, based on said interruption information.

10. The main unit as claimed in claim 8,
wherein said interruption detection unit outputs a
detection signal if the interruption exists in said
message-oriented data, and said main unit further
5 comprises a masking unit invalidating said detection
signal by each slave unit.